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DIRECTORATE OF
INTELLIGENCE

Industrial Facilities
(Non-Military)

Basic Imagery Interpretation Report

Wang-chu-chuang Petroleum Refinery

Wang-chu-chuang, China

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DATE April 1973
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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME		COUNTRY
Wang-chu-chuang Petroleum Refinery		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	25X1
NA	36-45-45N 118-16-00E	

MAP REFERENCE

15th RTS. USATC, Series 200, Sheet M0381-22HL, 4th ed, Jul 68, Scale 1:200,000

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LATEST IMAGERY USED	NEGATION DATE (If required)
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ABSTRACT

Wang-chu-chuang Petroleum Refinery processes crude oil from the Kuang-jao Oil Field. The main product of the refinery is gasoline in a wide range of octane ratings. Other products include kerosene, diesel and fuel oils, petroleum coke, and gaseous hydrocarbons. The main processing units are a crude oil distillation unit, a catalytic cracking unit, a delayed coking unit, a vapor recovery unit, an alkylation unit, and two blending/treating units. A catalytic reforming-hydrotreating unit is nearly complete. There are two unidentified processing units. Associated with the refinery are a nitrogen fertilizer plant, a petrochemical plant under construction, and a possible sulfuric acid plant.

Site preparation for the refinery was observed in March 1966. The refinery was first seen operating in September 1968 and has been operating on all subsequent coverages.

This report includes two photographs, a line drawing of the refinery, a list of functional areas with measurements of storage tanks, a graph showing construction chronology for individual units, and a discussion of the status of facilities.

Comments and queries regarding this publication are welcomed. They may be directed to of the Imagery Analysis Service, Code 25X1
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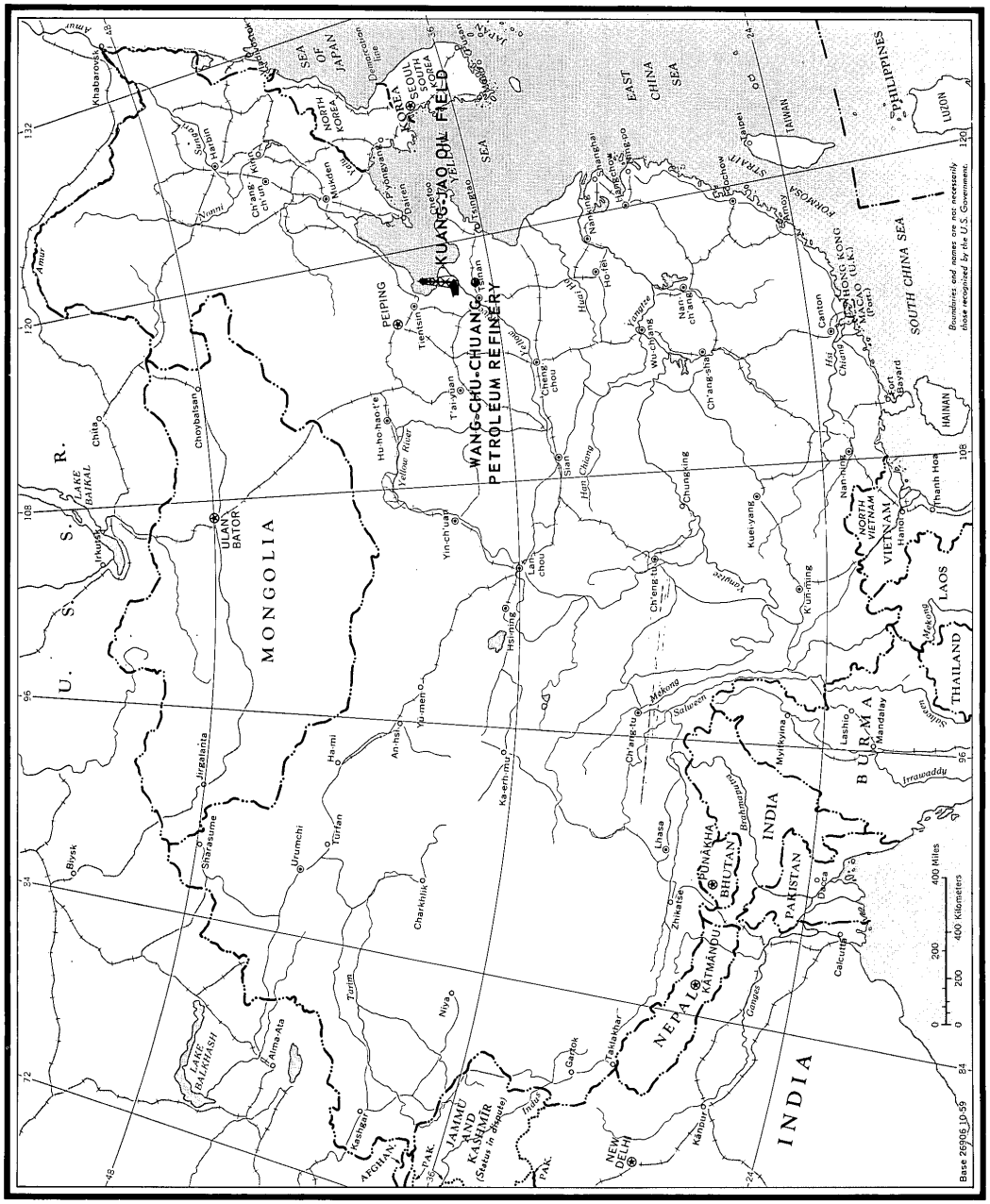

FIGURE 1. LOCATION MAP.

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INTRODUCTION

Wang-chu-chuang Petroleum Refinery is located 3.5 nautical miles (nm) southwest of Hsin-tien and 9.5 nm east-southeast of Tzu-po in Shantung Province (see Figure 1). Crude oil to charge the refinery is produced at the Kuang-jao Oil Field [redacted] The crude oil is transported by pipeline to Hsin-tien where it is transferred to railcars for delivery to the refinery. Rail service to the refinery is provided by a spur off the line between Tzu-po and Hsin-tien. Electric power is received through a transformer substation at the refinery and steam is provided by a collocated steam plant. 25X1

BASIC DESCRIPTION

The walled area of the refinery measures approximately 5,100 by 1,800 feet and occupies about 210 acres.

The adjacent Wang-chu-chuang Nitrogen Fertilizer Plant [redacted], which produces urea fertilizer, receives its gaseous hydrocarbon feedstocks from the refinery. A petrochemical plant is in the early stages of construction just south of the refinery and fertilizer plant. A possible sulfuric acid plant is located just east of the refinery (see Figure 2). 25X1

Operational Functions

The main processing units at the refinery are a crude oil distillation unit, a catalytic cracking unit, a delayed coking unit, a vapor recovery unit, an alkylation unit, and two blending/treating units. A catalytic reforming-hydrotreating unit is nearing completion. There are two unidentified processing units, one of which may be for pretreatment or separation of gaseous feedstocks for the fertilizer plant.

The main product of the refinery is gasoline in a wide range of octane ratings. Other products include kerosene, diesel and fuel oils, petroleum coke, and gaseous hydrocarbons. When the catalytic reforming-hydrotreating unit is complete the refinery will be able to produce additional gasoline blending components. Also, the aromatics benzene, toluene, and xylene (BTX) may be separated from the reformed gasoline. Some hydrotreating of products, such as diesel or fuel oils, may also occur using the surplus hydrogen produced in the reformer.

Construction and Operational Status

Site preparation and construction of some support facilities were observed on photography of March 1966. By January 1967 several processing units were in a mid stage of construction. Based on the stage of construction in January 1967, the refinery was probably operating by early 1968. However, the refinery was not covered again on photography until September 1968 when it was first seen operating. It has been operating on all subsequent coverages through October 1972. The construction chronology for the refinery is shown in Figure 5.

Functional Description

Table 1 lists the functional areas within the refinery and contains measurements of storage tanks in storage areas. All measurements are rounded to the nearest 5 feet.

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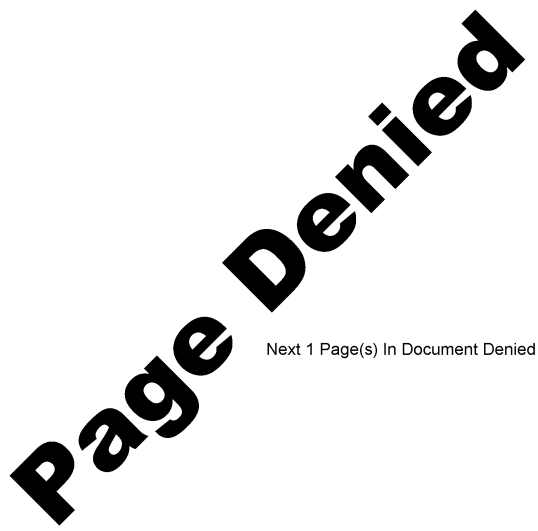
Table 1. Facilities at Wang-chu-chuang Petroleum Refinery (Keyed to Figure 4)

Area	Functional Description	Remarks
A	Products Storage	Area contains 15 cylindrical storage tanks 2 75-foot-diameter 2 60-foot-diameter 2 55-foot-diameter 4 40-foot-diameter 4 30-foot-diameter 1 10-foot-diameter Area also contains 2 horizontal storage tanks, 20 feet long.
B	Crude Oil and Possible Water Storage	Area contains 17 semiburied storage tanks (not measured). The 5 storage tanks at the east end of the area may be used for water storage. These 5 tanks were built at the same time a lake was formed just north of the area. A pipeline from the lake comes into the area but we cannot determine if it is connected to the 5 tanks.
C	Storage and Support	Area contains 29 cylindrical storage tanks. These tanks are below grade and are enclosed by a wall but they have not been earth covered 20 60-foot-diameter 3 55-foot-diameter 1 35-foot-diameter 4 20-foot-diameter 1 semiburied tank (not measured)
D	Blending/Treating and Shipping	
E	Unidentified Processing	This unit was constructed at the same time as the adjacent fertilizer plant. Therefore, it may be involved in pretreatment or separation of gaseous feedstocks for the fertilizer plant.
F	Water Cooling	
G	Alkylation	Reactor building contains at least 3 and possibly 4 reactors.
H	Storage	Area contains 38 cylindrical storage tanks 8 80-foot-diameter 6 60-foot-diameter 7 55-foot-diameter 4 50-foot-diameter 8 40-foot-diameter 2 20-foot-diameter 1 15-foot-diameter 2 10-foot-diameter Area also contains one horizontal storage tank 65 feet long.
I	Catalytic Reforming-Hydrotreating u/c	This unit contains more columns than are necessary for reforming and hydrotreating of reforming feedstocks. Therefore, some aromatics (BTX) separation may also occur in this unit. The unit is very near completion.
J	Unidentified Processing	
K	Vapor Recovery	This unit probably recovers vapor from the crude oil distillation unit, the catalytic cracking unit and the coking unit.
L	Blending/Treating	
M	Crude Oil Distillation and Catalytic Cracking	These are the standard-type crude oil distillation and catalytic cracking units now being constructed in China.
N	Delayed Coking	The unit has 4 coking drums.
O	Storage and Possible Blending/Treating	Area contains 11 cylindrical storage tanks 4 30-foot-diameter 7 15-foot-diameter 4 horizontal storage tanks 2 40-foot-long 2 35-foot-long
P	Support	
Q	Shipping	Area contains 4 railcar loading racks.
R	Storage u/c	Area contains 5 semiburied cylindrical storage tanks, 120 feet in diameter.



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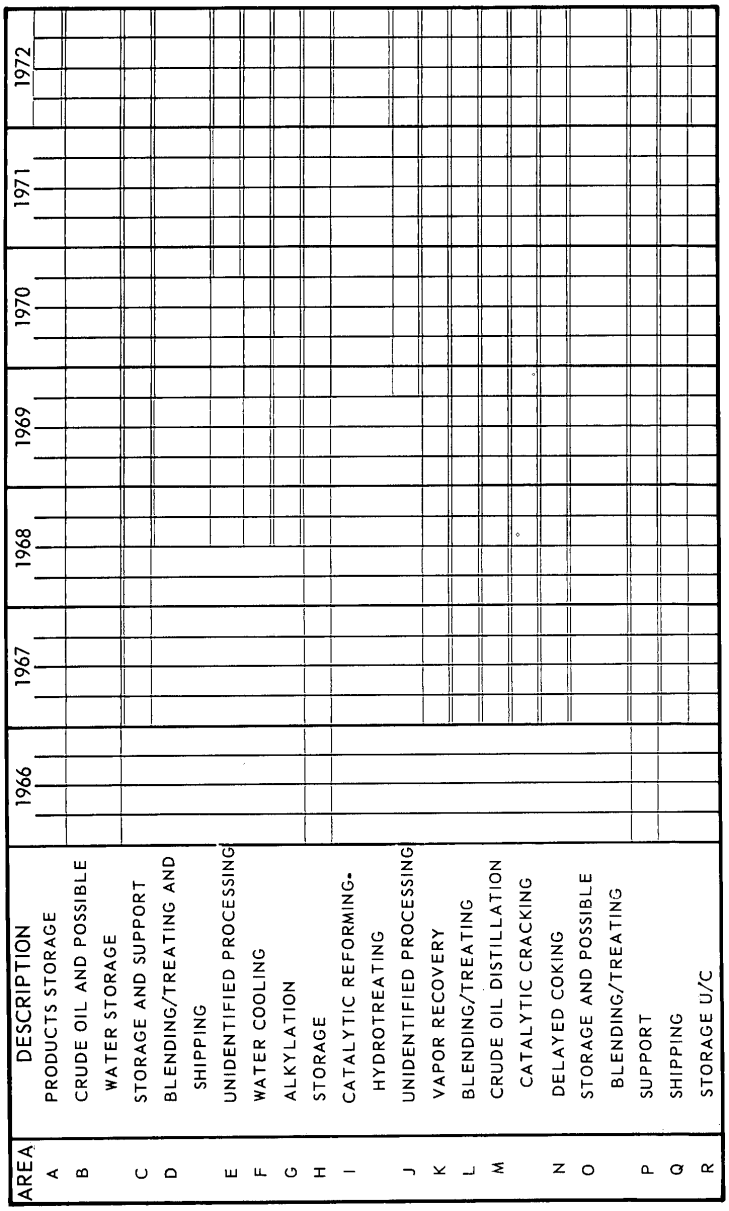

FIGURE 5. CONSTRUCTION CHRONOLOGY, WANG-CHU-CHUANG PETROLEUM REFINERY, CHINA.

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REFERENCES

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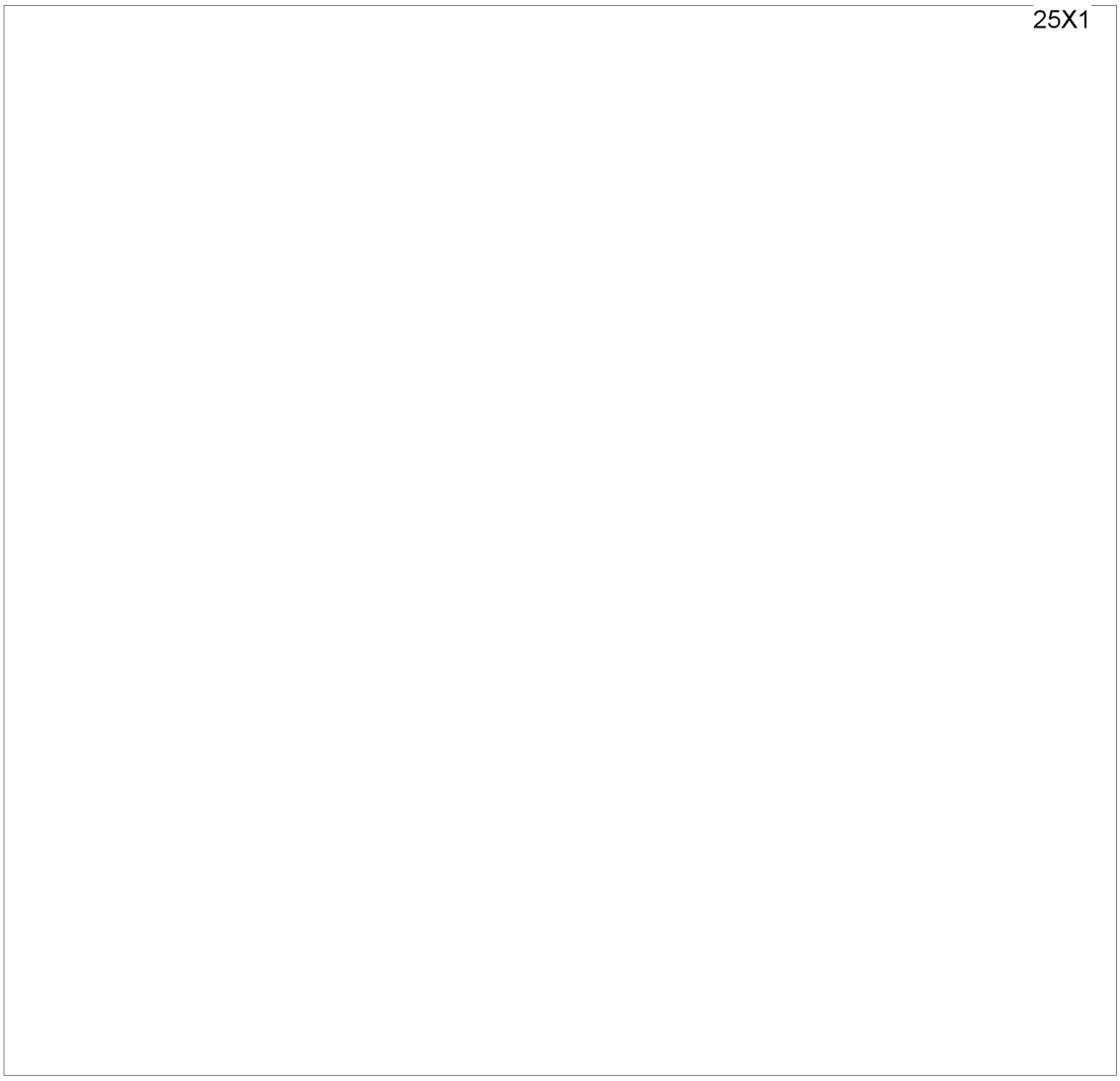

Map

15th RTS. US Air Target Chart, Series 200, Sheet M0381-22HI, 4th edition, July 1968, Scale 1:200,000 (Secret

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Requirement
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Support Number 423857

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